Cell Marketing: Next Generation Segmentation

John Galloway and S Sood
University of Technology, Sydney

Abstract

Cell marketing is a new marketing method derived from complex systems research. It provides marketers with new insights as to 'who's who in the (customers & prospects) zoo'. This paper describes for the first time the concept of cell marketing and why it is positioned as more specific and customer focused than segmentation processes alone. A case study is presented which involves a telecommunications company's attempts to more effectively target premium offers to key parties within its existing base. The paper also describes usage for customer acquisition purposes and its broader applicability to any industry segment via named entity extraction methods from unstructured data sources.

Keywords: Complex systems, emergence, segmentation marketing

The Problem

Marketing essentially has a lens that is either too wide or not wide enough from the viewpoint of attempting to attract new customers or retain existing ones. At one end of the spectrum, marketing is a shotgun affair with no targeting focus and at the other end it is one-on-one and highly focused/ directed. In between these two extremes, practicing marketers segment the market as best as they can. The reality is that segments are often rather amorphous collections of customers with broad descriptions such that precision and definition is wanting. On the other hand, the push toward one-on-one marketing, the power of one and the precision implied, is also found wanting in practice. Marketers find that they **must** deal with multiple sets of customers for economies of scale yet the drawbacks of working with broad and amorphous segments is less than ideal – darned if you do and darned if you don't (cf. Gibson 2001, Willaim & Neal 2001, Wind 1978).

Shotgun **Segments** **Cells** **One-on-One**

Less ←----------→ More

Degree of targeted focus

Half the Story

Most attempts to disaggregate a market analytically do so on the basis of the **attributes** of the people who make up the market. For example, a segment is defined by demographics or life style characteristics – i.e. attributes of the individuals. That has worked well. However "demographics are wearing thin" (Davey 2004), meaning that years ago one could characterise a market by reference to reasonably distinctive demographics (and/ or life style values) but that this is no longer the case. These variables are increasingly less effective at least in certain areas of application as audiences have become better educated and more sophisticated in choice behaviour. They simply conform less well to the demographic categories they belong to than they did.

In any event, there is another half to the story; there is another way to disaggregate a market. This views a market as a complex system of interdependent actors relating to each other in various ways (Barabasi 2003, Johnson 2002, Watts 1999). It gives emphasis to the **relationships** between people and the finding of sets of people who have many inter-relationships with each other, who are highly inter-twined for whatever reason (Note, this is different to "relationships marketing" which typically refers to the relationships between a company and its customers/ prospects – not to the relationships *between* the customers/ prospects).

This 'who knows who in the zoo'/ complex systems approach is different to an attributes/demographics segmentation approach but complementary to it. If one can understand these inter-relationships and the parties involved, **and** then add in available demographics (and/ or life-style values), we will have moved along the marketing spectrum toward the more targeted end - toward assuring more effective and relevant communication with existing or prospective customers.

Cells

A marketing cell is a set of customers or prospects with close inter-relationships between them. They have more relationships with and between each other than with parties outside the cell.

From a data perspective, the relationships in a telco environment may be calls made and received, e.g. A calls B, B calls C, B calls A, etc. If these calling patterns 'turn inward', i.e. if there are sets of people who mainly call each other, these are marketing cells. Each and every cell will have some raison d'étre. Perhaps they call each other much more than others because they have common interests via their children's soccer or ballet, via fishing interests, in business or professional sectors, etc. Whatever the reason, empirical reality via the data indicates that they **do** call each other a great deal. If the reason for these calling cells can be determined then so much the better with respect to being able to advance relevant offers or whatever.

Obviously also, if demographic and/ or life-style information can be overlaid, additional knowledge is provided about how best to market to the cells.

'Hubs' Within Each Cell

Each cell, whether it comprises dozens, hundreds or thousands of customers or prospective customers, will include a relatively few persons who have many more relationships with others than the majority of people in the cell. These hubs are of course critical from a marketing point of view, for it means that any offers to be made to the cell can be influenced by winning the hearts and minds of the hubs to help ensure acceptance within the cell. The hubs also act as a sounding board for the design of what is going to fly. Hubs are the connection points into the cells for the marketers.

Telco Case

A telecommunications organisation was experienced in marketing practice but wanted to explore additional ways of figuring out how best to make attractive offers to their customer base - to *whom* would the marketing offers be made, and *what* sorts of offers?

NetMap Analytics is an Australian organisation with powerful link discovery software called NetMap, used by various intelliengce agencies and for business intelligence analytical purposes around the world and which is essentially a complex systems modeling and analysis tool. NetMap was given approximately 600,000 records of call data over a period. The data were in a very simple format, just A and B party id codes, and time, date and duration.[1]

From the data, NetMap's unique 'emergent' algorithm discovered many marketing cells of different sizes and composition over the entire period, i.e. parties who called each other a great deal relative to the patterning of 'to' or 'from' calls outside the cell. Replaying of successive time slices produced different patterning of cells that emerged from the data at different times. Some were stable across most periods and some were more transient, appearing and perhaps splitting into two or three smaller cells, and later reappearing from time to time.

Figure 1

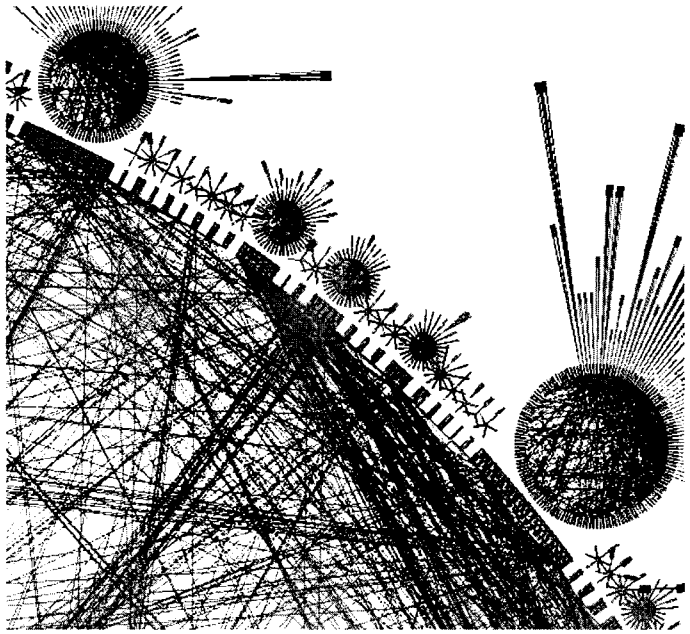

Figure 1. Screen shot showing some of the cells identified by NetMap in the telco data. Each cell was extracted for further analysis, married to other types of 'attribute' data such as customer demographics or life-style variables, and then colour coded to facilitate discovery of the characteristics of each cell and hubs.

[1] NetMap is here used to discover cells. It can also create a network based on attributes, e.g. create a link between A and B if they have identical (100% match) values across a set of attributes or have many similar values (e.g. 80%). By creating links based on attribute similarity, NetMap can determine useful emergent patterns and profiles. However, this is essentially non-network data, whereas the concept of cell marketing involves the use of naturally occurring relationships in explicitly network data (e.g. A calls B). Note attributes and relationships are or should be complementary forms of analysis.

The results from all time periods produced 136 marketing cells all showing strong inter-relationships and varying in size from 3 to 500. Approximately 70 cells were regarded as sufficient in size and composition to warrant further analysis.

Each of these cells was then analysed to determine who the 'hubs' were, i.e. those few parties with most of the relationships within the cell, and therefore those in a position to most influence others with respect to marketing offers.

A list was then produced of all the selected cells and the 'hubs' for each. This list was provided to the telco as input to a target-marketing program.

Figure 2.

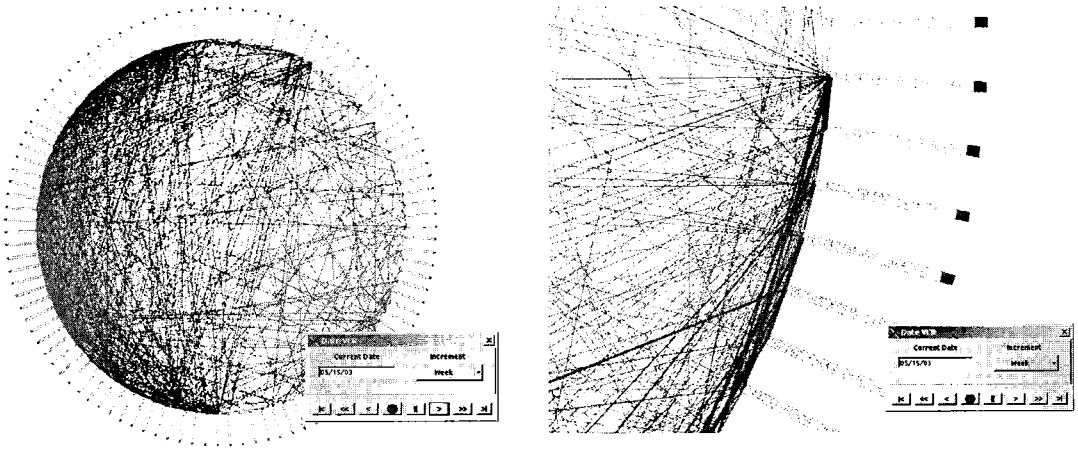

Figure 2. On the left is an extracted cell, along with a wizard for controlling date and time replays of calling relationships. On the right is a close up of the 'hubs' discovered within this cell, i.e. the parties who have most relationships with others in the cell and are best positioned to influence the acceptance of marketing offers to those others in the cell.

The exact status of outcomes in terms of the offers is not known at the time of writing. However a senior marketing representative was "delighted".

Types of Relationships

Cell marketing requires data to be available about relationships between customers and prospects, and defined and captured in a way that is relevant to the aims of the marketing program.

Structured data: Possible types of relationships where data in structured form are likely to be available include:

Telecommunications	Call data	A calls B, B calls C, etc.
Banking	Transfers	A transfers funds to B, B transfers to C, etc.
Any enterprise	Email	A emails B, B emails C, etc. ('to' and 'from' fields)
Any enterprise	Instant Messaging	A messages B, B messages C, etc. (ditto)

With the notable exceptions of telecommunications and banking industry applications (the later shading into anti money laundering applications), cell marketing in other industries may be stymied because of a lack of suitable sets of data that reflect relationships between people as they go about daily activities.

Unstructured data: Information extraction (IE) tools work with unstructured data or free text. Certain tools can be used to run over documents as a potent source of information about relationships for virtually any company in any industry. By extracting 'entities' from unstructured sources, categorizing them correctly into people names, company names, etc., and determining different types of relationships between them, IE tools can and are being used in conjunction with NetMap to form the basis of innovative and highly focused cell marketing programs.

For example, at the time of writing a case involves a finance organisation interested in acquiring new customers. Unstructured sources include various industry publications and web searched documents. Its existing customer base is loyal and committed. A strategic way forward is to understand as thoroughly as possible the patterns of relationships within the industry 'community' and particularly those between existing customers and others (relationships extracted from text, e.g. "X is photographed above shaking hands with Y"). In the context of offers, for example: are there cells that include existing customers *and* others, or just others alone; what raison d'étre exists for the different cells; which cells have 'hubs' who are existing customers who may influence non-customers; are there strategic relationships across to non-customers cells, etc?

The excellence of the unstructured data approach is that it frees us from previous constraints of not having available suitable network/ relationships data (with exceptions such as in telecommunications). It enables cell marketing programs to be undertaken in virtually any industry and for virtually any company to suit its marketing requirements.

Conclusion

Cell marketing is a new marketing method derived from complex systems research. We have argued that cell marketing enables more focused targeting than is possible from segmentation ('attribute') processes alone. It brings together two fundamentals of marketing research: (1) it harnesses the power of personal relationships and discovers cells of inter-relationships, and (2) it can then layer in 'attribute' data (eg demographics). The net result is that customer communications can be better targeted and more effective.

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